

Preliminary Site Investigation

This guidance provides a recommended report format and detailed instructions for conducting a Preliminary Site Investigation (PSI). The purpose of a PSI is to conduct environmental sampling to confirm whether or not there is a hazardous materials risk associated with the subject property. It is imperative that the PSI be conducted as early in the project as possible, certainly before making a decision regarding right-of-way acquisitions. A PSI may also be needed during the construction phase when hazardous materials have been discovered within the right-of-way. A PSI may be prepared independently or in support of a Discipline Study (DS) or Environmental Impact Statement (EIS) being completed for environmental documentation. For additional information regarding PSIs see Section 447.05(5) of the [Environmental Procedures Manual](#) (EPM). Information regarding contracts, investigation procedures, contacts and consultants, documents and links is online at the [Hazardous Material Web Page](#).

Either Hazardous Material Program staff or on-call consultant can conduct a PSI. Depending on staffing and the complexity of the project, the Hazardous Material Program can complete a PSI in 6 -12 weeks for \$3,000 to \$5,000. An on-call consultant can accomplish this for \$20,000 to \$35,000.

This guidance is divided into three sections:

- I. [Preliminary Work](#)
- II. [Recommended Table of Contents](#)
- III. [Report Format](#)

This document serves only as a guidance document. Specific project conditions and requirements will determine the information that is appropriate for the PSI.

I. PRELIMINARY WORK

A PSI is generally conducted when an Environmental Impact Statement (EIS), Discipline Study (DS), or an Initial Site Assessment (ISA) identifies the potential for contamination. When potential contamination is identified, sampling is recommended to verify whether contamination actually exists on site. Sampling recommendations are typically based on historical research of the site, state and federal regulatory site databases, and current property conditions. The following steps are preliminary procedures that are normally completed prior to developing the written PSI.

1. TAD Preparation for Consultants

Staff resources and workload constraints often determine whether the PSI can be conducted “in-house” by the WSDOT Hazardous Materials Program or by an on-call consultant. If necessary, a Task Assignment Document (TAD) can be arranged with an on-call consultant through the Cultural Resource/Contracts Office. Detailed steps regarding how to initiate a TAD can be found at the following links:

[WSDOT Environmental Affairs Office TAD Procedures](#)

Or

[WSDOT Regional Office TAD Procedures](#)

There are three available [consulting firms](#) that provide a variety of hazardous material services. Click “consulting firms” above for further information.

2. Hazardous Materials Staff PSI Preparation

When EAO staff conducts a PSI for a regional WSDOT office, a cost estimate, schedule, and abbreviated scope will be provided to the customer prior to the scheduling of sampling activities.

3. Sampling Analysis Plan (SAP)

Prior to sampling, the SAP must be prepared in accordance with WSDOT, state, and federal requirements and guidelines. The SAP is intended to provide a description of the work to be performed, including the project approach and scope of work. The SAP should identify the analytical methods to be used, any specific requirements and quality control information.

4. Health and Safety Plan (HASP)

Prior to sampling, the HASP is created to comply with the regulations governing health and safety of employees engaged in hazardous materials operations codified in 29 Code of Federal Regulations (CFR) and promulgated by Washington Administrative Code (WAC) Chapter 296-62. Additional applicable safety regulations are contained in Chapter 296-155 WAC.

5. Right-of-Entry Procedures

Permission of the property owner is necessary when access is required to conduct invasive testing for a PSI. See Section 447.05(9) of the [EPM](#) for further information regarding right-of-entry procedures.

6. Permits/Licenses/Notices

All applicable state regulations must be appropriately followed. Obtain and complete any required notices of intent, certifications, permits or licenses in accordance with required time limitations. Click [here](#) for a listing of common environmental permits identified by Ecology's Environmental Permit Handbook. The list below offers common examples that require permits, licenses and/or notices. Click each example for further information.

- 6.1 – [WDFW Hydraulic Project Approval \(HPA\) permit](http://www.wa.gov/wdfw/hab/hpapage.htm)
<http://www.wa.gov/wdfw/hab/hpapage.htm>
- 6.2 – [Notice of Intent to Construct a Monitoring Well](http://apps.ecy.wa.gov/startcards/)
<http://apps.ecy.wa.gov/startcards/>
- 6.3 – [Notice of Intent to Decommission Water Well](http://apps.ecy.wa.gov/startcards/)
<http://apps.ecy.wa.gov/startcards/>
- 6.4 – [30 Day Notice to Close UST](http://www.ecy.wa.gov/programs/tcp/ust-lust/electrnc.html)
<http://www.ecy.wa.gov/programs/tcp/ust-lust/electrnc.html>
- 6.5 – [Certified UST Contractor to excavate UST](http://www.ecy.wa.gov/pubs/96503/c13)
<http://www.ecy.wa.gov/pubs/96503/c13>
- 6.6 – [Water Well Construction and Operator's License](http://www.ecy.wa.gov/programs/wr/wells/driller.html) (includes soil borings)
<http://www.ecy.wa.gov/programs/wr/wells/driller.html>

7. Notify Laboratory

Call the laboratory in advance and advise them of the type and amount of samples that will need analysis. Identify which parameters will be required, the desired turnaround time, and the estimated date and time the samples will be delivered. Inquire about sample holding time requirements if necessary.

For a listing of available laboratories for use by state employees and contact information, visit the State Procurement Website at <http://www.ga.wa.gov/pca/pcacont.htm>, enter the Contract Number 00801, and click the "Find Contract" button.

8. Drilling Arrangements

Call and make arrangements with the appropriate drilling contractor. WSDOT has mandatory contracts for Environmental Drilling Services (Contract 05500). For a listing of available laboratories to state employees and contact information, visit the State Procurement Website at <http://www.ga.wa.gov/pca/pcacont.htm>, enter the Contract Number 05500, and click the "Find Contract" button.

9. Utility Locator

All utilities must be located prior to the commencement of excavation activities. The Utility Locate Center must be notified by a minimum of two business working days, and no earlier than ten days prior to excavation. The Utility Locate Center will then issue a certificate number that is valid for 10 days. If project work is longer than 10 days, the Utility Locate Center must be re-called to extend the certificate date. After the initial call, the Locate Center will notify all necessary utility owners so that utility sites are marked within the project footprint. The telephone number for the locate center is **1-800-424-5555**.

10. General Considerations:

10.1 Generated Waste

Generated waste from sampling procedures must be handled and disposed of in accordance with federal, state and local laws and procedures. If generated waste is anticipated, the TAD should incorporate appropriate disposal procedures. See Section 447.05(8) of the [EPM](#) for further information regarding disposal procedures.

10.2 Temporary Storage of Sampling Wastes

Arrangements must be made through WSDOT Real Estate Services (RES) and the Hazardous Materials Program when it is necessary to temporarily store sampling waste at the project site. If temporary storage is anticipated, the TAD should specify appropriate procedures within a specified time constraint.

10.3 Site Conditions

If deemed necessary due to specific project conditions, it is the responsibility of the professional (and their subcontractors) to leave the site in the same condition as it was prior to the commencement of sampling activities. For example, all drill holes should be filled and cemented with bentonite and capped with concrete. The TAD should incorporate all site-specific requirements regarding the condition of the site.

10.4 Reporting Requirements

It is the responsibility of the professional conducting the PSI to abide by all state, federal and local reporting requirements. In addition, contaminant results above Ecology's current MTCA cleanup levels should be reported to the following:

- WSDOT Hazardous Material Program
- WSDOT Regional Real Estate Office
- WSDOT Project Office
- Property Owner if property is not owned by WSDOT
- Department of Ecology if property is owned by WSDOT
 - Contamination that may be a threat to human health and/or the environment must be reported within ninety days of discovery.

11. GPS Procedures

A latitude and longitude point coordinate will be captured for each WSDOT parcel identified in the PSI. The Hazardous Materials (HazMat) Program's [GPS Minimum Requirements & Standard Operating Procedures](#) (GPS SOP) provide guidelines for:

1. Required GPS equipment, software, and settings
2. Working with the required data-dictionary
3. Taking a GPS point with a Trimble Geo 3 unit
4. Data processing

When the HazMat Program conducts the PSI in-house, the staff member will complete the site and location information on the [GPS Field Notes form](#) and forward it to the GPS support person within the HazMat Program.

When an on-call consultant conducts the PSI, the HazMat Program should determine if the consultant has the required GPS equipment and software (see below).

Required GPS Equipment/Software: Latitude and Longitude coordinates must be collected and processed with only Trimble GPS equipment and Pathfinder Office Software. The GPS equipment must have 1) GIS/mapping grade with 1 to 5 meter precision, 2) 12- channel receiver, and 3) ability to record attribute data for each feature. The Trimble Pathfinder Office software must be Version 2.7 or above.

If the on-call consultant has the required GPS equipment and software, the HazMat Program will notify the HazMat GPS support person who will provide the Consultant with an:

1. E-mail or fax of the [GPS Minimum Requirements & Standard Operating Procedures](#) (GPS SOP)
2. E-mail or fax of the [GPS Field Notes form](#) with completed site and location information
3. E-mail including the current data-dictionary

After the Consultant understands the GPS SOP, the Consultant will:

1. Save the data-dictionary into Pathfinder Office
2. Download the data dictionary into the GPS receiver
3. Collect the point consistent with the GPS SOP
4. Download the rover file (.ssf) into Pathfinder Office
5. E-mail the uncorrected rover file within 3 to 5 days to the HazMat Program GPS support person

After a GPS point has been taken of the site(s) and the HazMat Program's GPS support person has the uncorrected rover file, he/she will:

1. Differentially correct the file(s)
2. Enter the latitude and longitude into the Hazardous Material Site File database
3. E-mail the latitude and longitude coordinates to the Consultant/HazMat staff for inclusion in the written PSI report.

II. RECOMMENDED TABLE OF CONTENTS

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- 10.1 TABLES
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III. REPORT FORMAT

1 INTRODUCTION

The introduction should establish the “who, what, where and why” of a Preliminary Site Investigation. This section should identify the following background information:

1.1 *Responsible Offices/Consultants*

1.1.1 Office Requesting the PSI

1.1.2 Office\Consultant Performing the PSI

1.2 *Site Specific Information*

1.2.1 State Route

1.2.2 Site Name

1.2.3 WSDOT Parcel and/or County Tax Number(s)

1.2.4 City and County

1.3 *Purpose*

The purpose of a PSI generally includes:

- *Protecting WSDOT from liability that may be incurred by unknowingly acquiring previously contaminated property*
- *Testing and sampling suspected media to confirm whether or not hazardous materials exist on site*
- *Establishing an innocent landowner defense if hazardous material are discovered at a future date*
- *Beginning the site appraisal process and establishing a baseline condition for excess property*
- *Assisting in the selection of specific project alternatives*
- *Determining special disposal and worker safety construction requirements*

2 SITE DESCRIPTION

The site description is a discussion of the physical environment that includes a description of the soils and land use, which may help identify recognized environmental conditions.

Associating the location of the site with the physical setting and features of the property may help determine where contamination will be encountered as well as possible migration pathways. The site description should identify the following elements:

2.1 *Location*

2.1.1 Physical Address

2.1.2 Township, Section, Range, Quarter, Quarter Section

Resources:

- Kroll Maps <http://www.wsdot.wa.gov/mapsdata/products/otherlinks.htm>
- Metsker Maps and Right-of-way plans found at WSDOT Real Estate Services, Olympia WA, 360-705-7307
- USGS Topographic Maps at Microsoft TerraServer <http://terraserver.homeadvisor.msn.com/> or at TopoZone <http://www.topozone.com/>

2.1.3 Latitude & Longitude

Resources:

- WSDOT Hazardous Material Program's [GPS Standard Operating Procedures](#)

2.1.4 Legal Description

2.1.5 Vicinity Map (Figure 1) and Site Plan (Figure 2)

2.2 Physical Setting and Features

2.2.1 Site and Vicinity Characteristics

2.2.2 Descriptions of structures, roads, other improvements on the site (including heating/cooling system, sewage disposal, source of potable water)

2.2.3 Physiography, Geology & Hydrogeology

2.2.3(a) Environmental Setting

Resources:

- USGS-Current 7.5 Minute Topographic Maps
- USGS and/or state Geological Survey - Bedrock Geology Maps, Department of Natural Resources
- USGS and/or state Geological Survey - Surficial Geology Maps, Department of Natural Resources

2.2.3(b) Soil Conditions

Resources:

- County Soil Survey and Soil Conservation Service Soil Maps, [National Resources Conservation Service](#): at <http://www.wa.nrcs.usda.gov/technical/soils/index.html>

2.2.3(c) Groundwater Conditions

Monitoring/Water Well Reports from Department of Ecology

Water Well Log Reports at: <http://apps.ecy.wa.gov/welllog/>:

- Northwest Region, 425-649-7000
- Southwest Region, 360-407-6000
- Eastern Region, 509-456-2926
- Central Region, 509-575-2490

Note: [Ecology's region lines](#) are different than WSDOT regions.

3 RECORDS REVIEW

The purpose of the records review is to obtain and review records in order to identify properties or facilities located in the subject property vicinity that may have the potential to adversely impact environmental conditions. The records review includes a minimum search distance of a one-mile (1.6km) radius from the subject property.

Note: If an Initial Site Assessment (ISA) or Discipline Study (DS) was conducted for the subject property within one year of the PSI, the writer should not repeat information regarding the Regulatory Database Review, but summarize the most important details appropriate to the PSI and attach the ISA or DS as an appendix (if necessary).

The records review should identify the following elements:

3.1 *Historical Research*

3.1.1 Current and past property use of the subject property and adjoining properties

- 3.1.1(a) Note and describe structures, certain layouts, or equipment, which may indicate past uses of concern
- 3.1.1(b) Information (if any) regarding environmental liens or deed restrictions
- 3.1.1(c) Information (if any) from person(s) with specialized knowledge or experience

Resources:

- *Right-of-way plans and Acquisition Records located in WSDOT Real Estate Services, Olympia, WA (360) 705-7307*
- *Sanborn Fire Maps at the Washington State Library, Capitol Campus, Olympia, WA (360) 753-5590*
- *WSDOT Records or Archives (depending upon the property acquisition date)*
- *Aerial Photographs at the WSDOT Geographic Services Branch, Aerial Photography Section, Contact Program Manager-James Walker at 360-709-5550. To view & select photos, fax to 709-5599 with the following information:*
 - *Attn: Aerial Photo Lab*
 - *Content: 1) Describe the location & 2) Give date/time of arrival*
 - *Attachments: Project & vicinity maps*
- *Property Tax Files at the Local County Assessor's Office*
- *Recorded Land Title Records at the Local County Assessor's Office*
- *Local Street Directories*
- *Building Department Records at the Local Community Planning and Development Office*
- *Zoning/Land Use Records at the Local Community Planning and Development Office*
- *USGS 7.5 Minute Topographic Maps*
- *Department of Health/Environmental Division¹*
- *Fire Department¹*
- *Planning Department¹*
- *Local/Regional Pollution Control Agency¹*
- *Local Electric Utility Companies (for records relating to PCBs)¹*

¹ The availability of these records will depend on the location of the subject property.

3.2 *Regulatory Database Review*

- 3.2.1 Federal Sources (See EPA's [EnviroMapper](http://www.epa.gov/enviro/html/em/index.html) at: <http://www.epa.gov/enviro/html/em/index.html>)

CERCLIS: Superfund Program Comprehensive Environmental Response, Compensation and Liability Act Information System. The database includes potentially hazardous waste sites that have been reported to the USEPA and that are proposed for or are on the NPL.

<http://www.epa.gov/superfund/sites/cursites/index.htm>

NPL: National Priority List under CERCLA or Superfund. The list is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup that pose an immediate threat to human health or the environment requiring remedial action.

<http://www.epa.gov/superfund/sites/npl/wa.htm>

RCRIS: Resource, Conservation and Recovery Act Information System. The list identifies facilities registered with the EPA that generate, treat, store and/or dispose of hazardous waste as defined by RCRA.

<http://www.epa.gov/rcraonline/>

FRS: Facility Registration System. The database identifies sites and facilities that have been investigated or have applied for permits under various federal and state environmental programs.

<http://www.epa.gov/enviro/>

TRIS: Toxic Chemical Release Inventory System. This list identifies facilities that release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

<http://www.epa.gov/enviro/>

TSCA: Toxic Substances Control Act. This list identifies manufactures and importers of chemical substances included on TSCA Chemical Substances Inventory list.

<http://www.epa.gov/enviro/>

- 3.2.2 Washington State Sources

CSCSL: Confirmed and Suspected Contaminated Sites List. This list contains hazardous waste site records and is equivalent to CERCLIS. These sites may or may not be on CERCLIS and are priority sites planned for cleanup using state funds or sites where potentially responsible parties will pay for cleanup.

<http://www.ecy.wa.gov/programs/tcp/cscs/CSCSpage.HTM>

HSL: Hazardous Site List. The HSL is a subset of the CSCSL report. It includes sites that have been assessed and ranked using the Washington Ranking Method (WARM).

http://www.ecy.wa.gov/programs/tcp/mtca_gen/hazsites.html

LUST: Leaking Underground Storage Tanks list. The database lists sites of known releases of hydrocarbons from underground storage tanks. The database generally indicates if the release has been cleaned-up/closed or is under remediation.

<http://www.ecy.wa.gov/programs/tcp/ust-lust/tanks.html>

UST: Underground Storage Tanks list. The database lists registered underground storage tanks regulated under Subtitle I or RCRA. There is the potential that abandoned or out of business facilities, in addition to active facilities, may not have registered their tanks under this program.

<http://www.ecy.wa.gov/programs/tcp/ust-lust/tanks.html>

Toxics Cleanup Program Site Register: The report is a semi-monthly publication identifying statewide cleanup activities. It provides information about public meetings, public comment periods, and cleanup-related reports.

http://www.ecy.wa.gov/programs/tcp/pub_inv/pub_inv2.html

4 FIELD INVESTIGATION ACTIVITIES

This section provides the procedures for collecting potentially contaminated environmental media. Field activities must follow procedures identified in the Sampling Analysis Plan (SAP). Deviations from the SAP should be discussed prior to the commencement of activities with either the WSDOT EAO Hazardous Material or Regional Office staff member responsible for overseeing the work. Activities that are not consistent with the SAP should be noted and explained in the PSI report. This section should identify the following elements:

4.1 *Sampling Program Summary*

- 4.1.1 Environmental Professionals: Identify who conducted the sampling.
- 4.1.2 Sampling date
- 4.1.3 SAP²: Indicate that all sampling was conducted in accordance with the accepted SAP or note changes that were pre-approved by the appropriate WSDOT staff member. The SAP provides the rationale for planned sampling locations and testing parameters along with identification of selected methodologies and appropriate QA/QC measures. Attach the SAP as an appendix.
- 4.1.4 Sample Location Map: Attach and refer to the Sample Location Map that depicts each sample area. The map should differentiate the different media types sampled and different types of sampling techniques.
- 4.1.5 Photographic Documentation: If available, attach photographic documentation as an appendix.
- 4.1.6 Chain-of-Custody: Refer to the completed chain-of-custody that certifies an accredited analytical laboratory received the samples. Attach the Chain-of-Custody as an appendix.

4.2 *Field Conditions*

- 4.2.1 Field Activities: Summarize field investigation activities for each individual sampling location, include the following information as applicable:
 - 4.2.1(a) Field Screening Instruments – Identify the instruments and the results of any “real-time data,” such as portable flame and photoionization detectors.
 - 4.2.1(b) Soil Sampling – Identify the presence of any sheens or organic vapors; the depths of sampling; soil classification; the depth to groundwater; and whether or not the sample was retained for laboratory analysis. Include a boring log and/or table that summarize the location, depth and type of soil samples collected.
 - 4.2.1(c) Groundwater Sampling – Identify the presence of any sheens or organic vapors; the depths of sampling; soil classification; the depth to groundwater; and whether or not the sample was retained for laboratory analysis. Include a well or boring log and/or table that summarize the location, depth and quality (i.e., pH, conductivity, turbidity, temperature, etc.) of water samples collected.

² See page 3 for additional information regarding the Sampling and Analysis Plan.

5 LABORATORY ANALYSIS

This section is a discussion of the analytical analysis conducted on the samples that were collected during the field investigation. This section should identify the following elements:

5.1 General

- 5.1.1 Laboratory: Identify the accredited analytical laboratory and the date the samples were submitted.
- 5.1.2 Analyticals: Identify the specific analyses used.
- 5.1.3 Sample Details: Identify which samples were submitted for analysis.

5.2 Analytical Results

Summarize the results of each sample submitted for analysis.

- 5.2.1 Organization: Distinguish the results by 1) media (i.e., soil separately from groundwater), 2) contaminant type (i.e., petroleum vs. metals), or 3) if known, by source (i.e., leaking underground storage tank versus contamination from drum storage area).
- 5.2.2 Analytical Summary Table: Include a table that summarizes 5.2.1 and identifies the samples obtained, the sample analyses, the analytical methods, and comparison/screening criteria (such as Model Toxics Control Act (MTCA) Method A).
- 5.2.3 Analytical Reports: Attach and refer to the analytical reports in the appendix.

6 DISCUSSION OF FINDINGS AND CONCLUSIONS

This section confirms whether or not hazardous materials or petroleum products exist on the subject property. Provide a discussion that includes:

6.1 Results Summary

- 6.1.1 Identify whether or not contamination exists on the subject property
- 6.1.2 Compare the results to regulatory requirements and/or guiding standards identified in Section [5.2](#)

6.2 Contaminant Characteristics

- 6.2.1 Identify the suspected source of contamination
- 6.2.2 Identify potential migration pathways
- 6.2.3 If chemicals that occur in nature are detected, determine whether they are naturally occurring or are present as a result of human activity (i.e., lead).

6.3 Data Validity

- 6.3.1 Evaluate and discuss the validity / completeness of information (i.e., Did the information meet quality standards?).

7 RECOMMENDATIONS

Recommendations can be used to guide the users towards a better business decision by pointing out the risks or lack of information that became apparent by the data identified in the PSI. Further guidance may involve the following topics:

- 7.1 ***WSDOT Cleanup Liability*** (Longterm cost implications, e.g., groundwater monitoring)
- 7.2 ***Construction Impacts*** (Cost Implications)
- 7.3 ***Worker Safety***
- 7.4 ***Necessity of Further Assessment or Remediation (if deemed necessary) and associated Cost Estimates***

8 LIMITATIONS

This section provides a disclaimer that protects the professional and WSDOT from undue legal responsibility, duty or obligation. This section may identify the following:

- 8.1 ***Special Terms and Conditions***
- 8.2 ***Limitations and Exceptions of Assessment***
- 8.3 ***Limiting Conditions and Methodology Used***

Below is an example of the standard paragraph used to protect WSDOT liability.

“Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for assessment of potentially contaminated sites and in accordance with ASTM Standard Practice for Environmental Site Assessments: Environmental Site Assessment Process E-1257. This report is not meant to represent a legal opinion. Questions regarding this report and the associated work documented herein should be directed to (name _____) at (###)### - #####.

9 REFERENCES

This section documents the sources of information that support the PSI. Provide specific details for each source of information so that future readers can obtain the same documents or contact the same people, businesses or offices. Common references generally include:

9.1 *Research Documents*

9.2 *Written Communication*

9.3 *Verbal Communication*

10 TABLES, FIGURES & APPENDICES

The following list of Tables, Figures and Appendices are suggestions to help supplement the PSI report. Required elements are identified in **bold** below.

10.1 *Tables*

Table 1	Location, Depth, and Type of Soil Samples Collected
Table 2	Analytical Results Summary Table
Table 3	Other Data Requiring Summarization

10.2 *Figures*

Figure 1	Vicinity Map
Figure 2	Site Plan
Figure 3	Sampling Plan Map (identifies soil borings or well locations)
Figure 4	Other Figures as Necessary to Depict Site Conditions

10.3 *Appendices*

Appendix A	Sampling Analysis Plan (SAP)
Appendix B	Photographic Documentation (If Available)
Appendix C	Historical or Regulatory Research Documentation (i.e., EDR Reports)
Appendix D	Boring/Excavation Logs & Monitoring Well Construction Details
Appendix E	Analytical Results With Quality Control Information
Appendix F	Chain-of-Custody
Appendix G	Previous Reports (i.e., Initial Site Assessment)
Appendix H	Other Appendixes Necessary to Support the Report